Alison Foulis - City Clerk

From: Mary Neilan - City Manager
Sent: Monday, June 20, 2016 8:50 AM
To: Alison Foulis - City Clerk
Subject: Fwd: Deer Control on Belvedere

Begin forwarded message:

From: jody owen <jowen769@yahoo.com>
Date: June 19, 2016 at 7:48:54 PM PDT
To: "mneilan@cityofbelvedere.org" <mneilan@cityofbelvedere.org>, "bmccaskill@cityofbelvedere.org" <bmccaskill@cityofbelvedere.org>, "cmcauliffe@cityofbelvedere.org" <cmcauliffe@cityofbelvedere.org>, "nkemnitzer@cityofbelvedere.org" <nkemnitzer@cityofbelvedere.org>, "jcampbell@cityofbelvedere.org" <jcampbell@cityofbelvedere.org>, "mwinter@cityofbelvedere.org" <mwinter@cityofbelvedere.org>
Subject: Deer Control on Belvedere
Reply-To: jody owen <jowen769@yahoo.com>

My husband and I now live on Belvedere Island but from 1996 -2010 we lived in North Haven NY on the East End of Long Island. We had a significant deer problem in North Haven which is a 2.7 square mile peninsula. The village did not address the problem until it significantly effected the quality of life of the residents and then the solutions were difficult. North Haven still has the problem today and has a deer committee which evaluates new solutions as they become available.

Since we have move here, we see the signs of a rising problem in Belvedere. There is a increasing population of deer. On my property and as I walk around the island I see many does with two young. It doesn't take long for the herd to increase in size given that birth rate. There are three key areas which could develop quickly.

1. Tick borne diseases. Deer are a primary host of adult ticks and contribute to an increasing population of ticks. I am very concerned about the threat of Lyme and other tick borne diseases. I have this year pulled several ticks off my dog which hasn't happened in the past. When we first moved to North Haven 1996, there were ticks but not many and humans getting tick diseases was unusual. When we moved away, tick bites that had to be treated with antibiotics to insure you did not get Lyme were common and we had more types of tick disease including Rocky Mountain Spotted Fever, anaplasmosis and babesiosis. People were warned to take precautions - don't walk on trails in the summer, stay out of wooded areas and tall grass, wear special clothing if you were out and check yourself and your animals daily. Adults and many children contracted the disease. The town of North Haven eventually had to take action because of the number of families who contracted Lyme and the growing health threat. However their options were limited because they waited.

2. Negative impact on the ecosystem and other animals. Deer dramatically change their habitat particularly in a confined space like Belvedere. Already as I walk around Belvedere, I see the new growth being eaten and ground cover such as ivy being eaten. The hillsides no longer have the ground cover they had even earlier this spring and loose dirt is on the street from deer paths up the hill side. If the new growth is eaten repeatedly it will not grow back. I am concerned Belvedere could look like North Haven did with most of the ground cover and 4 ft of understory vegetation gone. That would take away the habitat of other animals such as rabbits and foxes. In North Haven we had no rabbits or foxes which had been plentiful. Also as the herd grows there is not enough food for the deer and they can become unhealthy and under weight. Without the underbrush and ground cover, erosion could become much more of an issue on the hill sides of Belvedere.

3. Injuries. I have had deer jump in front of my car and been stalked by does trying to protect their young in Belvedere.
I don't know if there have been injuries to residents, but if the herd increases there will be. In North Haven we had fatalities.

I will admit that the problem we had on the East Coast was severe and the problem in Belvedere may never get to that extreme. However, studying the problem and having a plan is critical to making the right decisions in the future. North Haven's deer problem grew to be a herd of several hundred in 2.7 square miles. We heard all the same cons - the deer population hasn't grown, the deer were here before us, anything you do to remove them is inhumane, they don't hurt anything. I was sympathetic but it continued to get worse. Sterilization was not an option because the herd was too big. The town opted for a long bow and arrow hunt from October to March. The hunt still goes on every year and the herd is now stable at slightly over 100. A hunt like that would not be viable with the close proximity of houses in Belvedere. North Haven does an aerial count of the herd every year. The size of the deer population is not low enough to begin to control the population with sterilization and too high to control the tick population. They continue to search for solutions.

I urge Belvedere officials to research and understand the options as well as to monitor the size of the herd carefully. A lot of these communities on the east coast would consider sterilization but the herds are too large. As the Belvedere problem grows it will only get more difficult and expensive. If I can help in any way, I would be happy too. I am reachable by email and by phone 917 817 8720.

Thank you for your attention to this matter

Jody and Bob Harris

Alison Foulis - City Clerk

From: Mary Neilan - City Manager
Sent: Wednesday, June 22, 2016 8:28 AM
To: Alison Foulis - City Clerk
Subject: FW: Deer in driveway
Attachments: IMG_9061.JPG; ATT00002.txt

Mary Neilan, City Manager
City of Belvedere
450 San Rafael Ave.
Belvedere, CA 94920
(415) 435-3838
(415) 435-8906 (direct)

From: Hansen, John T. [mailto:john.hansen@pillsburylaw.com]
Sent: Wednesday, June 22, 2016 8:24 AM
To: Mary Neilan - City Manager
Subject: FW: Deer in driveway

Dear Ms. Neilan: I live at 108 Golden Gate Avenue (and have since 1974). I attach a photo taken last evening (June 21) shortly after I pulled into my driveway. This deer was trying to push her way through a deer fence that we had installed (at considerable expense) in order to get to the roses behind the fence. She spooked and ran across the driveway when I pulled in, only to run into the deer fence protecting our garden on the other side of the driveway. Deer like this one are on our property nearly every day, notwithstanding that we have tried in every way imaginable to discourage their presence--from noise making devices to flashing lights to deer-repellant sprays to deer-resistant planting to deer fencing and so on. Nothing seems to deter them. They pose a significant hazard to drivers, to pedestrians, to human health (lyme disease from deer ticks) and to the gardens and landscaping that contribute to Belvedere Island's beauty and charm. In sum, they have grown in numbers and have become a serious nuisance and hazard.

As an additional example, early last Saturday morning (June 18) I was walking down Golden Gate Avenue and passed by the home of a neighbor who is currently away on vacation. The neighbor's gardener had just arrived and was very agitated. He advised that a large deer was trapped in the back garden and he needed my help in getting the deer out. I accompanied the gardener into the garden and encountered a mature doe in the midst of a number of rose bushes. I don't know how she got into the garden (which is enclosed) or how long she'd been there. But since the neighbor was out of the country, we realized the importance of getting the deer out of there before she was able to do significant damage. Ultimately, we discovered a gate at the other end of the garden and were able to coax the deer to leave. The point is that it was just luck the gardener happened to be at the neighbor's house. Had he not discovered the deer, the neighbor would likely have returned home from vacation to find his garden in a sorry state.

Please forward this to the City Council and let them know that our family strongly endorses the deer sterilization proposal that the Council is currently considering. Something needs to be done, and the sooner the better!

Thank you very much.

John Hansen

John T. Hansen | Partner
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I realize that Belvedere residents want to do something to mitigate the deer population. If the same group were willing to consider a similar procedure on the male deer, I would probably not oppose it. I'm perplexed why the guys didn't approach the idea originally — castrate the male deer? Oh, I think I read that they said the female deer where more docile… hum. Anyway, There is research that supports this is the better option — sterilizing the bucks. I am forwarding you 3 links which I hope you will read and consider. One is about the consequences to a community that sterilized the female deer. One is a video of the female deer on the operating table legs spread open during the procedure — which I found repulsive, and last is a paper on sterilizing male deer — you may want to reach out the author to follow up on this procedure and evaluate it for yourself.

I do appreciate the opportunity to share with you my opposition.

http://wpo.st/Ls7h1

http://www.nbcwashington.com/news/local/290291841.html

Non-lethal Methods of Controlling Deer Population Growth

Plant Science Day 2002 Short Talk

Dr. Uma Ramakrishnan
Department of Forestry and Horticulture
The Connecticut Agricultural Experiment Station
123 Huntington Street, P.O. Box 1106
New Haven, CT 06504

Phone: (203) 974-8609
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The large numbers of white-tailed deer in Connecticut have led to numerous problems including damage to agricultural crops and landscapes, increased deer-vehicle collisions, and the spread of disease. My talk today will focus on "Non-lethal Methods of Controlling Deer Population Growth". Deer population management using reproductive control has received a lot of attention from the popular press, and some of it can be quite confusing. By the end of this talk I hope that all of you will have a better idea of where we stand in terms of non-lethal deer management. I will also describe some of the techniques we are experimenting with at The Connecticut Agricultural Experiment Station. I've also put up some posters that describe the research I'm conducting.

I will begin with this slide to give you an idea of deer population size both historically and currently. White-tailed deer was hunted close to extinction through much of its range by the end of the 1800s. Their numbers began to rebound during the later part of the 20th century because increasingly restrictive laws were enforced by game wardens to protect deer. Another factor that contributed to the increase in

deer numbers is that by 1900, thousands of marginal farms had been abandoned leaving areas ideal for deer.

This slide shows the distribution of deer-related accidents in 2000. Deer-vehicle collisions in Connecticut have been increasing steadily over the last decade. In the year 2000, over 3,300 deer-vehicle collisions were reported in Connecticut. Most of the accidents occurred between October and December, corresponding with the deer breeding-season. The towns that recorded the highest deer-vehicle collisions in the State included Madison, North Branford and Groton.

Some methods being used to reduce deer damage include:

1. Selecting deer-averse plants

2. Using chemical repellents (I have prepared handouts that list some of the options for deer control in your garden)

3. Using physical barriers (types of fencing include simple single strand electric fencing to light-weight plastic fencing and heavy-duty chain-linked fencing)

4. Herd control (the introduction of predators is not an option in suburban Connecticut)

- Lethal (or regulated hunting)

- Live capture and relocation

- Controlling reproductive output

Regulated hunting is the most widely used method of white-tailed deer control. While it is effective in some places, it can have the opposite effect in other places. Some of the limitations of hunting are:

1. Hunting is often not feasible or safe in suburban areas, due to high human densities. It is also often not socially acceptable.

2. Intermediate to low levels of hunting may result in improved overall deer health and reproductive output, because hunting often reduces competition for the surviving deer, which then have access to more food, resulting in more fawns

3. Deer learn to avoid areas during hunting season and take refuge in areas where hunting is restricted

4. Deer can stay bedded during the day and feed after dark, thus avoiding hunting periods – hunting is prohibited after daylight hours.

Live capture and relocation – this always seems like a comfortable option, you can get rid of problem deer without killing them, and no one is upset. The problems with this method of deer control are

1. there are few places available to release these excess deer

2. the procedure of capture and release is very expensive

3. the biggest objection to the procedure is that mortality among relocated animals is very high.

Reproductive control: By suppressing reproduction in a population to a level below that of natural mortality, it is possible to achieve a decrease in population size. Most of the research on non-lethal control in deer has focused on females. The two basic methods of controlling female reproduction in deer are by using immunocontraceptives and by using contragestation agents.

Before I explain the different methods of reproductive control, I would like to explain the 3 distinct seasons in deer biology in Connecticut. This is relevant because techniques used to control reproductive output are dependent on these seasons. Sept.-Dec. is the breeding season; Jan.-April is the herding season, when most females are pregnant; and May-Aug., is the fawning season.

As I mentioned earlier, there are 2 tested methods of reproductive control in female deer, the first of which is using Immunocontraceptive vaccines. These vaccines work similar to human contraceptives. The disadvantages of immunocrotraceptives are that females need to be treated twice the first year, and treated females need to be given a booster shot each subsequent year of the program. Females also need to be treated just before the breeding season.

The other method of female reproductive control in deer is the use of contragestation agents. A contrgestation agent is one that causes spontaneous abortion. The disadvantages of contragestation agents are that like immunocontraceptives, females need to be treated every year, during the breeding season. If treated early in the pregnancy, females will simply get pregnant again. If treated late in the pregnancy, it is often dangerous to the health of the female (females have an unusually long labor. Normal labor is about 20-25 min., with this treatment – 24-28 hrs!).

Now moving on to my research - most of my research is conducted on south central water authority property in North Branford. One of the reasons for selecting this property as a site for my research is because it has a high density of deer. Hunting is prohibited here, which makes it easier for me to document changes in population size. This site forms one of the more typical areas where non-lethal techniques are applicable. If you look at this topo map of the study site, you can see that the southern boundary of the property borders residential communities. As I mentioned earlier, suburban communities in forest fringes are ideal habitat for white-tailed deer.

I have been collecting demographic information such as number of males, number of females, number of yearlings and number of fawns, using camera traps. I've set up feeders throughout the site. These feeders have been programmed to dispense corn once a day. Out here you can see a camera. This is a motion sensitive camera that is triggered when an animal comes in to feed. Data using the cameras indicated that for every adult male, there are about 3 adult females. This data is consistent with other parts of the state.

Before I could initiate a non-lethal population control research program, I also needed information on deer movement patterns and behavior within the site. To this end, we have captured over 70 deer and fitted them with cattle tags for individual identification. To record movement patterns, we have also fitted some of the deer with GPS collars and radio collars. This collar is a GPS collar. These collars record the exact location of the animal every 2 hours by tracking satellites.

This poster shows the home range of some of the females that had been fitted with GPS collars. Each color represents the home range of a different female. What I found was that the home range sizes vary widely among females, ranging from 30 acres to 3395 acres. Typically, suburban deer found in areas of very high deer densit, have relatively small home ranges. The data revealed that most suburban female deer had very well-defined movement patterns - when moving from forested areas to feed in people's back-yards, they typically chose specific gardens and went to the same locations on repeated nights.

Now moving on to the sterilization technique that I'm testing. The method I'm investigating involves sterilizing large males. Most of the research on reproductive control in deer has focused on females. The main reason for focusing efforts on females instead of males is that hunting records have shown that removing males from the population does not adversely affect the reproductive rate of females. However, hunting involves removal of males from an area, and this could lead to males that would otherwise not have access to females to mate. Sterilization would allow for the treated males to remain in the area. In species such as white-tailed deer, where a hierarchy exists in which dominant males monopolize most of the mating, greater efficiency could come from sterilizing large males. The fact that suburban deer have small home ranges makes it easier for males to guard females. The common method of sterilizing male domestic animals is by castration. However, castration will obstruct the production of hormones, thus such males will no longer produce antlers or engage in mating or mate guarding behavior. The method that we are using to sterilize males does not affect hormone production, thus the behavior of the treated male is not altered as a result of the treatment.

By retaining treated males in the population, these individuals will continue to use resources and participate in mating behavior, thus reducing the reproductive output of females.

Males are captured using a dart gun, where the dart contains tranquilizing drugs. Once the animal has been darted, it can take anywhere from 5 minutes to about 30 min. for the animal to go down. We track the darted animal via a transmitter that is attached to the dart, using an antenna and receiver. Since most of the capture occurs after dark, this is especially helpful. Once we find the animal, we fit a mask over the eyes to keep them calm, in the event that they are not completely out. We then draw some blood to maintain a DNA profile on the animals, and fit cattle tags for identification. We then sterilize the animal.

Here's a quick lesson in male deer reproductive physiology – sperm are stored in the testes, and transported through the epididymus and the vas deferens. As I mentioned earlier, deer are seasonal breeders. So their reproductive organs only function from around July to January, after which the organs remain dormant. The procedure I'm testing to sterilize males is very simple, I'm blocking the

epididimus (which is located here). The procedure involves injecting a scarring agent through the skin, which then forms a plug, thus prevents the flow of sperm.

Potential advantages of this sterilization technique:

1. The risk of infection in treated individuals is very low.

2. The procedure appears to be permanent, quick and easy to learn, and requires no surgical equipment.

3. Unlike steroids, these agents dissipate in the system shortly after administering.

4. The behavior of the treated animals is not altered as a result of the treatment.

5. By focusing on large males, fewer numbers of individuals in the population need to be treated.

Possible limitations of this method:

1. It is difficult to measure success rate

2. Animals need to be captured and handled

3. Females may continue to cycle, leaving more opportunities to be bred

4. May lead to behavioral changes among males and females

5. There may be more late born fawns that may not survive winter

There is also promising research being tested elsewhere. The National Wildlife Research Center, which is a branch of the USDA, is now working on a single dose immunocontraceptive. There is also research being conducted on the surgical sterilization of females.

These studies that I have undertaken are still at its infancy. It will take a few years to measure the success of these techniques. Reproductive control techniques are not quick fixes, and should be viewed as long-term solution. The function of such research is not to find a technique cheaper than hunting, but to provide alternatives to communities that are looking for other options, especially in areas where residential densities preclude hunting as an option.

Alison Foulis - City Clerk

From: Mary Neilan - City Manager
Sent: Wednesday, June 22, 2016 8:30 AM
To: Alison Foulis - City Clerk
Subject: FW: Deer mitigation

From: Wyman Harris
Sent: Monday, June 20, 2016 1:07 PM
To: CLAIRE MCAULIFFE
Cc: Mary Neilan - City Manager
Subject: Re: Deer mitigation

The 2002 Connecticut study cited by Anonymous proved that sterilization of male deer does not work because unlike wild horses deer do not form harems controlled by dominate males. Unbred females become magnets for any unsterilized male for miles around and will ultimately become pregnant.

The Cornell University study cited involved tubal ligation of female deer. Because the ligated does were unable to become pregnant, they continued to produce chemical signals of readiness to reproduce — signals that can attract bucks from miles away. Cornell eventually switched to ovariectomies with success.

The video that Anonymous finds repugnant shows the extreme care and sterile procedures used to perform ovariectomies. The procedure is less invasive than spaying pets.

Sent from my iPhone

Non-lethal Methods of Controlling Deer Population Growth

Plant Science Day 2002 Short Talk

Dr. Uma Ramakrishnan
Department of Forestry and Horticulture
The Connecticut Agricultural Experiment Station

Alison Foulis - City Clerk

From: Mary Neilan - City Manager
Sent: Wednesday, June 22, 2016 8:31 AM
To: Alison Foulis - City Clerk
Subject: FW: The deer problem

From: Ingrid Wheeler
Sent: Monday, June 20, 2016 4:19 PM
To: Mary Neilan - City Manager
Subject: Fwd: The deer problem

On Jun 20, 2016, at 9:20 AM, Ingrid Wheeler wrote:

> To the City Council and the City of Belvedere –
> My name is Ingrid Wheeler and we live at 206 Bayview Ave.
> We feel very strongly that something should be done about the deer problem which seems to be getting out of hand with the number of deer roaming around trying to find something to eat. The hillside are bare and they are undermining the trees where their routine trails pass. We have had a tree fall down on top of our hillevator from the ravaged hillside next to our house and the wall which supports our deck is being undermined by the routine passage of deer there. As we walk around the island we see the increasingly bare hillsides which are becoming quite ugly with summer approaching and bring the possible danger of erosion when the rains start.
> Apart from this, and the danger of deer crossing the roads especially at night and being hit by a car, there is the tick problem. This should not be taken lightly as we have a number of friends who have suffered terrible health issues with Lyme disease. I have been bitten twice and had to take antibiotics. All our pets can pick up ticks while outside and then bring them back into our homes.
> I think that the sterilizing of female deer sounds like the most humane way of treating this problem and should be seriously considered.
> Thank you for your attention,
> Ingrid Wheeler

Forwarded to City of Belvedere

June 19, 2016

Dear Belvedere Decision Makers,

Just a note to let you know that Ingrid and Bill Wheeler are very much for the proposals of the 2016 Deer Committee.
We are concerned about the damage the deer do to our island and even more to the danger of Lyme disease that
they carry. You and we all know friends here who are currently affected by this disease.

The Deer committee has done a fine job in researching what approaches are available to us, and we believe the
have identified a solution that has worked elsewhere and will work here. Please give the Committee your attention
and support. We do understand that there are probably many citizens who may not want to hear about something
which may be unpleasant to the "poor deer", but if the deer population increases, the deer will suffer more.

Thank you for your attention, Bill and Ingrid Wheeler